

POTENTIALLY TOXIC ELEMENTS DOWNWARD MOBILITY IN AN IMPOUNDED VEHICLE SCRAPYARD**P17**C.N. Lange^{a,1}, A.M.G. Figueiredo¹, J. Enzweiler² and L.R. Monteiro¹^a clange@usp.br¹Nuclear and Energy Research Institute, São Paulo, Brazil²Geoscience Institute, University of Campinas, Campinas, Brazil

Pollution from vehicle in parking areas has become a challenge mainly in urban centers. In Brazil impounded vehicle scrapyards (IVS) are often overcrowded and may pose a source of potentially toxic elements (PTEs). Recently Lange *et al.* (2016) have evaluated PTEs mass fraction on topsoil (0.2m) in an IVS at Ribeirao Pires city (23°42'8" S 46°25'34" W) which lies 29km southwest of São Paulo city, in southwest of Brazil. The authors observed hot spots for most elements suggesting vehicular source. This IVS terrain was filled with soil mixed with demolition waste, such as brick, tiles, steel, wood, plastic, glass, asphalt fragments, rubbers and also auto parts pieces. Since 90's, this IVS is operational and, before the filling, no evaluation on PTEs soil distribution by depth was performed. Therefore, many doubts concerning PTEs downward mobility lay in this site. The aim of this study is to evaluate if PTEs indeed moved through the soil depth and if so what are PTE's concentration in groundwater, since this site has a permeable surface and vehicles are parked directly on topsoil. Three monitoring wells were installed. Nine samples were collected in plastic liners: four in PM1, three in PM2 and two in PM3. Groundwater was sampled using a low flow peristaltic pump and pH, electrical conductivity, redox potential and temperature were measured with a multiparameter probe. Neutron activation analysis was employed to determine PTEs in soil samples, and ICP-MS was the analytical technique for groundwater analysis. The obtained values were compared with literature data from Brazil and other regions around the world, as so with recommended values from environmental regulatory agencies. Although the obtained results have indicated some PTEs enrichment in the distinct soil layers, these elements did not reach groundwater, according to present evaluation.

This work was published in abstract book of 5th INCC – 5th International Nuclear Chemistry Congress held in Sweden, p. 99 – 99 (2017)
